



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,838	03/23/2005	Shigeo Okuno	2005-0438A	8544
513	7590	10/22/2007	EXAMINER	
WENDEROTH, LIND & PONACK, L.L.P.			TORRES RUIZ, JOHALI ALEJANDRA	
2033 K STREET N. W.			ART UNIT	PAPER NUMBER
SUITE 800				2838
WASHINGTON, DC 20006-1021				
MAIL DATE		DELIVERY MODE		
10/22/2007		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/528,838	OKUNO, SHIGEO
	Examiner	Art Unit
	Johali A. Torres Ruiz	2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 01 August 2007.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1,2 and 5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1,2 and 5 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 23 March 2005 is/are: a) accepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application
- 6) Other: _____.

DETAILED ACTION

Response to Amendment

1. This Office action has been issued in response to the amendment filed on August 1, 2007. Claims 1-2 and 5 are pending. Applicant's arguments have been carefully and respectfully considered. Rejections have been maintained where arguments were not persuasive. Also, new rejections based on the amended claims have been set forth. Accordingly, claims 1-2 and 5 are rejected, and this action has been made FINAL, as necessitated by amendment.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gali et al. (U.S. Patent Number Re. 35,643), Chiang et al. (U.S. Patent Number 6,479,966), Kondo et al. (U.S. Patent Number 6,730,428) and further in view of Gali et al. (U.S. Patent Number 5,633,575, hereinafter '575).

4. Claim 1: Gali teaches a method for removing membranous lead sulfate deposited on electrodes of a lead acid battery due to sulfation (Col.1, Lines 41-44), featured by applying a pulse current having a short pulse width for dissolving the surface layer of

said membranous lead surface deposited on said electrodes of said battery (Col.1, Lines 59-67) (Col.2, Lines 1-4) (Col.4, Lines 21-26) (It inherently has current). It does not explicitly teach the pulse is a negative pulse nor that the pulse frequency is of 8000 to 12000 Hz. It does not explicitly teach the pulse brings about a conductor skin effect. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990) (The prior art taught carbon monoxide concentrations of "about 1-5%" while the claim was limited to "more than 5%." The court held that "about 1-5%" allowed for concentrations slightly above 5% thus the ranges overlapped.); *In re Geisler*, 116 F.3d 1465, 1469-71, 43 USPQ2d 1362, 1365-66 (Fed. Cir. 1997) (Claim reciting thickness of a protective layer as falling within a range of "50 to 100 Angstroms" considered *prima facie* obvious in view of prior art reference teaching that "for suitable protection, the thickness of the protective layer should be not less than about 10 nm [i.e., 100 Angstroms]." Gail teaches that to apply a pulse peaking at a necessary voltage a duration of said pulse should be less than 5 μ s. Chiang teaches applying a negative pulse to a battery (Col.4, Lines 44-48). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have had applied a negative pulse to a battery in Gail to facilitate the removal of lead acid compound from the surface of an electrode (Col.4, Lines 57-58) as taught in Chiang. Kondo teaches applying a pulse current with a frequency of 10kHz to a battery (Col.2, Lines 36-40). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have had

applied a pulse current with a frequency of 10kHz to a battery in Gail to prevent the occurrence of sulfation (Col.2, Lines 36-40) as taught in Kondo. '575 teaches a pulse bringing a conductor skin effect (Col.1, Lines 54-61) (Col.3, Lines 21-25). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have had a pulse bring about a conductor skin effect on Gail to enhance the cleaning of the battery plates (Col.3, Lines 21-25) as taught in '575.

5. Claim 2: Gali, Chiang, Kondo and '575 teach the limitations of claim 1 as discussed above. Gali teaches charging said lead acid battery while or after applying said pulse current to said battery (Col.4, Lines 32-35), to resolve the lead sulfate dissolved by applying said pulse current (Col1, Lines 18-20) (after the pulse dissolves the lead deposited on the electrode the lead resurfaces as lead dioxide).

6. Claim 5: Gali, Chiang, Kondo and '575 teach the limitations of claim 1 as discussed above. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990) (The prior art taught carbon monoxide concentrations of "about 1-5%" while the claim was limited to "more than 5%." The court held that "about 1-5%" allowed for concentrations slightly above 5% thus the ranges overlapped.); *In re Geisler*, 116 F.3d1465, 1469-71, 43 USPQ2d 1362, 1365-66 (Fed. Cir. 1997) (Claim reciting thickness of a protective layer as falling within a range of "50 to 100 Angstroms" considered *prima facie* obvious in view of prior art reference teaching that "for suitable protection, the thickness of the protective layer should be not less than about 10 nm

[i.e., 100 Angstroms]." Gail teaches that to apply a pulse peaking at a necessary voltage a duration of said pulse should be less than 5 μ s. Peterson, 315 F.3d at 1330, 65 USPQ2d at 1382 ("The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages.") Someone of ordinary skill in the art at would have the motivation to determine where in the disclosed range of less than 5 μ s the optimum results would be obtained.

Response to Arguments

7. Applicant's arguments filed August 1, 2007 have been fully considered but they are moot in view of the new ground(s) of rejection.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gelbman et al. (U.S. Patent number 6,184,650) discloses an apparatus for charging and desulfating a lead acid battery using pulse current. Krausse, III et al. (U.S. Patent Number 4,891,686) discloses high frequencies cause the phenomenon known as skin effect.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johali A. Torres Ruiz whose telephone number is (571) 270-1262. The examiner can normally be reached on M- Alternating F 7:30am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


BQV


BAO Q. VU
PRIMARY EXAMINER